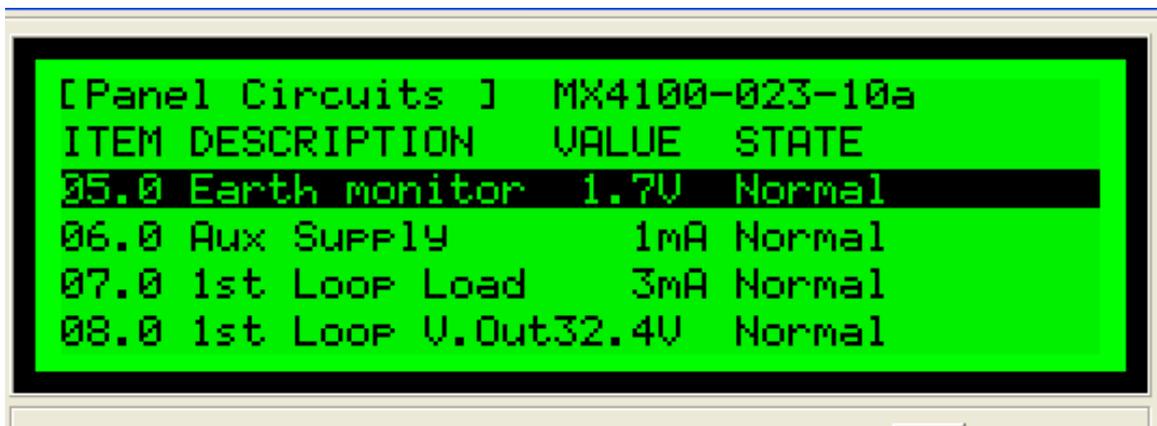


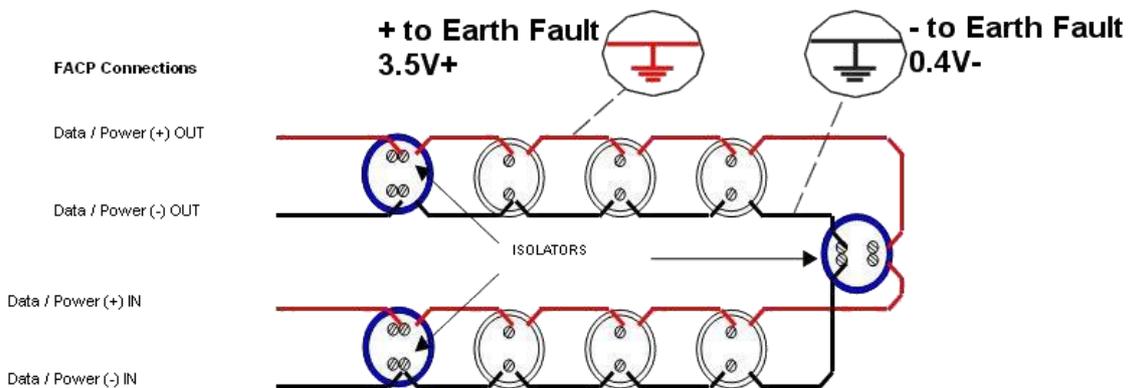
Tracing Earth Faults

Fault Information

Earth faults usually happen during the installation process when a short occurs between the Positive contact or the Negative contact down to Earth. When viewing the normal Earth voltage value from the panel, the value will average at around 1.7V.



If this reference voltage drops below 0.4V, an Earth Fault Too Low (Negative Earth Fault) will occur. If this reference voltage goes above 3.5V, an Earth Fault Too High (Positive Earth Fault) will occur.



Tracing the Fault

To trace the fault, the panel should be in the **View/Panel** Menu. Scroll down to Address 5.0. This is the Earth Monitoring circuit.

```
[Panel Circuits ] MX4100-023-10a
ITEM DESCRIPTION  VALUE  STATE
05.0 Earth monitor 1.7V  Normal
06.0 Aux Supply   1mA  Normal
```

A panel reset will clear any latched faults.

The panel should be isolated from all field wiring, all loops, sounder circuits, network cables etc. and the mains should be removed. The panel should be connected to the batteries only. The panel will show lots of other faults due to all the field wiring being disconnected.

With all of the field wiring disconnected, the Earth Monitor Voltage should be within the correct range of 0.5V > 3.5V at an average of 1.7V after a reset. If this is not the case, please contact Technical Support for further assistance on +44(0)1670 707 111.

The field wiring can now be reconnected. First replace the mains, then the loops one at a time. For example if the fault is on Loop 2, as soon as Loop 2 is reconnected, Address 5.0 will either go high or low i.e. <0.5V or >3.5V.

```
[Panel Circuits ] MX4100-023-10a
ITEM DESCRIPTION  VALUE  STATE
05.0 Earth monitor .2V  TOO LOW
06.0 Aux Supply   1mA  Normal
```

The fault should be noted as coming from Loop 2 but not assumed as being the only Earth Fault. This loop should be disconnected and the rest of the wiring reconnected to check for further issues.

Once it has been confirmed that Loop 2 is the issue, this loop can now be broken down into sections to trace the source of the fault.

A break should be made in a suitable location around the middle of the loop so that the panel is actually running two radial circuits. At the panel, disconnect the **Out** going radial and check the Earth reference voltage. If the Earth Voltage returns to normal, we know the fault is on this side of the loop. If the fault does not clear, repeat the process on the **In** incoming radial circuit.

Once it has been ascertained which side of the loop is at fault, we can start to break down the circuit. Another break should be made on the faulty side of the circuit and the Earth Voltage re-checked. This process should be repeated until the area at fault has been identified.

Please note in Level 3 (Commissioning), the panel will only drive voltage from the **Out** terminal.